This listing of the claims replaces all prior versions in the application.

Listing of Claims:

1. (Currently Amended) A magnetic resonance imaging (MRI) guidewire, comprising:

an inner conductor;

an outer conductor coaxially disposed about the inner conductor;

a distal end sized and shaped for insertion into a subject to receive MRI signals; and

a proximal end sized and shaped for insertion into a connector, the proximal end having:

an outer conductor contact coupled electrically to the outer conductor; and

an extended section of the inner conductor that extends axially beyond the outer conductor contact, the extended section including:

an inner conductor contact having an electrically conductive material disposed at least partially around the inner conductor; and

an insulated area interposed between the outer conductive contact and the inner conductive contact, and having an electrically insulating material disposed at least partially around the inner conductor;

wherein the distal end of the guidewire defines an antenna configured to detect MRI signals and the inner and outer conductors are configured to conduct the detected MRI signals to the proximal end of the guidewire.

2. (Original) The guidewire of claim 1, wherein the guidewire diameter is sized for insertion into the lumen of an anatomic structure of a subject.

3. (Original) The guidewire of claim 2, wherein the anatomic structure is a blood vessel.

4. (Original) The guidewire of claim 2, wherein the subject is a human.

5. (Original) The guidewire of claim 1, wherein the guidewire diameter is less than about 0.040 inches.

6. (Original) The guidewire of claim 5, wherein the diameter is between about 0.012 inches and 0.038 inches.

7. (Original) The guidewire of claim 6, wherein the diameter is about 0.014 inches.

8. (Original) The guidewire of claim 1, wherein a diameter of the inner conductor is between about 0.004 inches and about 0.012 inches.

9. (Original) The guidewire of claim 1, wherein the guidewire has a stiffness sufficient for insertion into a lumen of an anatomic structure of a subject.

10. (Original) The guidewire of claim 1, wherein the guidewire is biocompatible.

11. (Original) The guidewire of claim 1, wherein the guidewire comprises a conductive material.

12. (Original) The guidewire of claim 1, wherein the guidewire is composed of nonmagnetic materials.

13. (Original) The guidewire of claim 1, wherein the guidewire comprises a superelastic material.

14. (Original) The guidewire of claim 13, wherein the superelastic material comprises titanium.

15. (Original) The guidewire of claim 13, wherein the superelastic material comprises Nitinol.

16. (Original) The guidewire of claim 1, wherein the guidewire is sterilizable.

17. (Original) The guidewire of claim 1, wherein the outer conductor contact and the inner conductor contact are each annular in shape.

18. (Original) The guidewire of claim 17, wherein the outer conductor contact and the inner conductor contact have approximately equal diameters.

19. (Original) The guidewire of claim 17, wherein the inner conductor contact is disposed radially about a portion of the extended section of the inner conductor.

20. (Original) The guidewire of claim 1, wherein the insulated area is annular in shape.

21. (Original) The guidewire of claim 1, wherein the outer conductor contact is axially distal to the inner conductor contact.

22. (Original) The guidewire of claim 1, further comprising an extension attachment coupled to the proximal end of the guidewire.

23. (Original) The guidewire of claim 1, further comprising an identification parameter.

24. (Original) The guidewire of claim 23, wherein the identification parameter comprises at least one of a resistor value, a digital signature, or a unique serial number.

25. (Currently Amended) An MRI compatible medical coaxial cable, comprising:

an inner conductor;

an outer conductor coaxially disposed about the inner conductor; and

a proximal end sized and shaped for insertion into a connector, the proximal end having:

an outer conductor contact coupled electrically to the outer conductor; and

an extended section of the inner conductor that extends axially beyond the outer conductor contact, the extended section including:

an inner conductor contact having an electrically conductive material disposed at least partially around the inner conductor; and

an insulated area positioned to isolate electrically the outer conductive contact from the inner conductive contact, and having an electrically insulating material disposed at least partially around the inner conductor,

wherein the coaxial cable is configured to conduct MRI signals.

26. (New) The guidewire of claim 1, wherein the inner conductor is a center conductor.

27. (New) The guidewire of claim 1, wherein the connector is sized and configured to receive the proximal end of the guidewire and is configured to attach to an MRI scanner and allow transmission of the received MRI signals thereto.

28. (New) The guidewire of claim 1, wherein the connector is releasably attachable to the outer and inner conductors whereby different medical devices can be serially removed from and attached to the guidewire.

29. (New) The guidewire of claim 1, wherein the connector comprises electrical shielding configured to inhibit RF interference when the guidewire is in operative use in an MRI scanner.

30. (New) The guidewire of claim 23, wherein the identification parameter is configured to identify that a proper connector and guidewire combination is used.

31. (New) The guidewire of claim 1, wherein the connector comprises an MRI scanner interface circuit, and wherein the guidewire and/or connector comprises a connection detector that identifies when the guidewire is disconnected from the interface circuit.

32. (New) The guidewire of Claim 23, wherein the identification parameter is unique to a specific guidewire and is used to limit a respective guidewire to a single-use.

33. (New) The coaxial cable of claim 25, wherein the inner conductor is a center conductor.

34. (New) The coaxial cable of claim 25, wherein the connector is sized and configured to receive the proximal end of the coaxial cable and is configured to attach to an MRI scanner and allow transmission of the received MRI signals thereto.

35. (New) The coaxial cable of claim 25, wherein the connector comprises electrical shielding configured to inhibit RF interference when the guidewire is in operative use in an MRI scanner, and wherein the coaxial cable is configured to be inserted into a patient.

36. (New) The coaxial cable of claim 25, wherein the connector comprises an MRI scanner interface circuit, and wherein the coaxial cable and/or connector comprises a connection detector that identifies when the cable is disconnected from the interface circuit.

37. (New) The coaxial cable of claim 25, wherein the coaxial cable comprises an identification parameter.

38. (New) The coaxial cable of claim 25, wherein the identification parameter is unique to a specific guidewire and is used to limit a respective cable to a single-use.